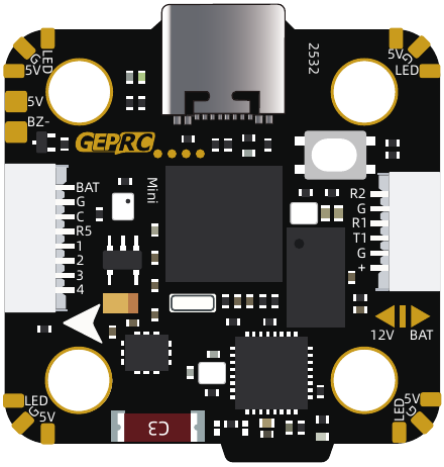
# TAKER H743 MINI 32Bit 60A STACK

Flight controller and ESC
User manual




**Read the whole manual before assembly. The set is a building component, not a finished ready-to-use product.**

*GEPRC · Imported by Rotorama, s.r.o.*

# Contents

# 1. Safety Instructions

## 1.1 Before you start

Read this manual in full before you take the set out of its antistatic bag. It describes the assembly, wiring and commissioning of a flight controller and electronic speed controller set for building an unmanned aircraft (drone).

- The product is a **building component**, not a finished ready-to-use product. It assumes knowledge of soldering, handling Li-Po batteries and configuring flight firmware.
- The set is **not a toy** and is not intended for children. A drone built from these parts can cause serious injury.
- Responsibility for the safety, conformity and operation of the finished drone lies with the person who builds and operates it. See chapter 3 for details.
- Check the entire wiring before you connect the battery for the first time – most faults are caused by bad soldering, reversed polarity or a short circuit.

**❊ Damage caused by incorrect wiring, reversed polarity, a short circuit or overvoltage is not a product defect.**

## 1.2 Electrical hazards and hot components

- At 8S the supply voltage reaches up to **33.6 V** (34.8 V with LiHV) and the ESC current **60 A continuous**. A short circuit at this power level causes an arc and a fire.
- Never connect or disconnect connectors under load other than the main battery connector.
- Do not carry out any soldering work while the battery is connected and do not power the board from the battery and from USB at the same time.
- The power components of the ESC and the regulators of the flight controller **reach temperatures that can cause burns** during operation. Do not touch them after a flight until they have cooled down.
- The boards must not come into contact with conductive parts of the frame, with carbon dust or with moisture. Carbon fibre is electrically conductive.

## 1.3 Li-Po and LiHV batteries

The set is designed to be powered from Li-Po or LiHV batteries in a 3–8S configuration. The battery is not included.

| State | Li-Po | LiHV | 3S | 4S | 6S | 8S |
|---|---|---|---|---|---|---|
| Fully charged | 4.20 V/cell | 4.35 V/cell | 12.6 V | 16.8 V | 25.2 V | 33.6 V |
| End the flight | 3.5 V/cell | 3.5 V/cell | 10.5 V | 14.0 V | 21.0 V | 28.0 V |
| Storage | 3.8 V/cell | 3.8 V/cell | 11.4 V | 15.2 V | 22.8 V | 30.4 V |

*The pack voltages in columns 3S–8S apply to Li-Po. With LiHV, full charge is 13.05 V (3S), 17.4 V (4S), 26.1 V (6S) and 34.8 V (8S).*

- **Never exceed 8S.** A higher voltage will destroy both the ESC and the flight controller and creates a fire hazard.
- Always fit a **fully charged** battery to the drone.
- Charge the battery under supervision and in a fireproof container. Never charge a damaged, swollen or crashed battery.
- After a crash, leave the battery for at least 30 minutes in a safe place away from flammable materials.
- For a longer period of inactivity, set the storage voltage to **3.8 V per cell**.
- Batteries and electrical waste do not belong in unsorted waste (chapter 8.3).

**※ Battery manufacturers' figures for discharging below 3.5 V per cell are not used for drone operation.**

## 1.4 Rotating propellers

- **Fit the propellers as the very last step**, after all setup is complete and the motor direction has been verified.
- Carry out all setup, calibration, firmware updates and motor testing **without the propellers fitted**.
- Before connecting the battery, check that the transmitter is on, the throttle is at minimum and the Arm switch is in Disarm.
- Rotating propellers cause deep cuts. Keep hands, face and bystanders at a distance.

## 1.5 Operating environment and electromagnetic compatibility

- The set is intended for installation in a model and for operation in a dry environment. It is neither waterproof nor dust resistant.
- Protect the boards from impact, vibration and mechanical stress on the cables.
- The ESC is a source of electromagnetic interference. To keep the model compliant with the electromagnetic compatibility requirements, observe the following:
- **always fit the supplied 1000 µF / 50 V capacitor** to the power input of the ESC, with the correct polarity and as close to the solder pads as possible,
- route the motor wires by the shortest path, without loops, and do not bundle them with receiver, camera or video transmitter wiring,
- route the signal wires away from the power section and away from the gyroscope and do not use extension cables on the power input.

**※ If the model does not meet the electromagnetic compatibility requirements for residential areas, operate it away from them.**

# 2. Product Description

The **GEPRC TAKER H743 MINI 32Bit 60A STACK** is a set of two boards with a 20×20 mm mounting pattern for building an FPV drone: the **TAKER H743Mini** flight controller (FC) and the **TAKER H60 Mini AM32 60A 4IN1** electronic speed controller (ESC).

## 2.1 Package contents

① 1× TAKER H743Mini flight controller

② 1× TAKER H60 Mini AM32 60A 4IN1 ESC

③ 1× 1000 µF / 50 V capacitor

④ 1× DJI Air Unit cable, SH1.0-6P

⑤ 1× flight controller cable, SH1.0-8P

⑥ 1× flight controller to GPS cable, SH1.0-4P

⑦ 1× XT60 power cable, 12 AWG, 55 mm long

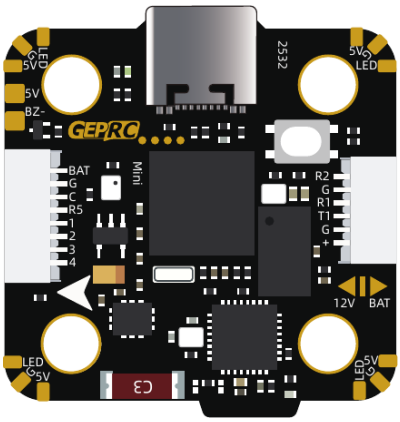
⑧ 10× M3 silicone damper

⑨ 5× M3×22 screw

⑩ 6× M3 nylon lock nut and 5× M3 hex nut

**※ The battery, motors, propellers, frame, receiver, camera and video transmitter are not included.**

## 2.2 TAKER H743Mini flight controller



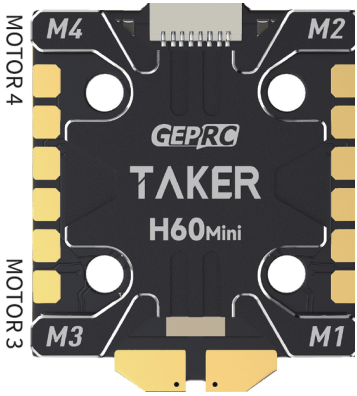

*TAKER H743Mini flight controller*

| | |
|---|---|
| Processor | STM32H743 |
| Gyroscope | ICM42688-P (SPI) |
| Barometer | yes, onboard |

| | |
|---|---|
| Bluetooth | yes |
| Blackbox | 16 MB onboard |
| OSD | Betaflight OSD, AT7456E |
| BEC output | 5 V / 3 A and 12 V / 3 A (two independent) |
| Input voltage | 3–8S Li-Po |
| Serial ports | 7 UART groups |
| Dimensions | 31.5 × 30.5 mm |
| Mounting pattern | 20 × 20 mm |
| Weight | 6.1 g |
| USB connector | USB-C |
| Firmware target | GEPRC_TAKER_H743MINI |

*Data according to the manufacturer's manual and product page.*

## 2.3 TAKER H60 Mini AM32 60A 4IN1 ESC

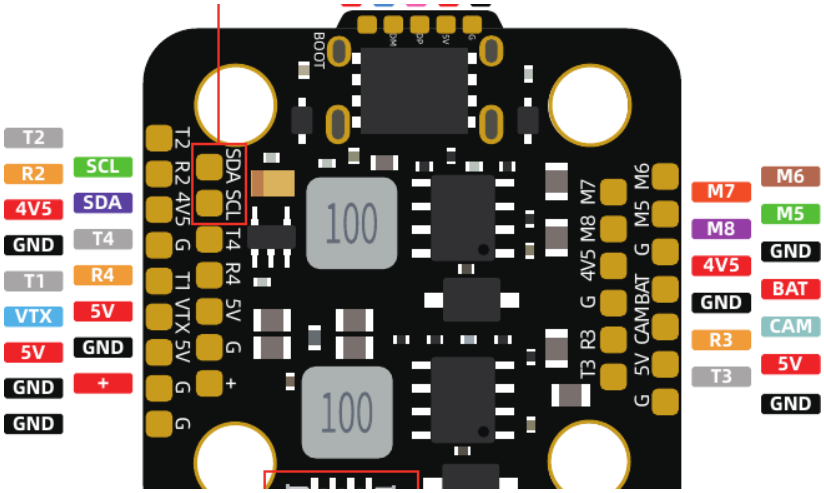



*TAKER H60 Mini AM32 60A 4IN1 ESC*

| | |
|---|---|
| Input voltage | 3–8S Li-Po |
| Continuous current | 60 A |
| Burst current | 65 A (5 s) |
| Current sensing | yes |
| Supported protocols | DShot150 / DShot300 / DShot600 |
| Dimensions | 36 × 43 mm |
| Mounting pattern | 20 × 20 mm |
| Weight | 17 g (including the aluminium heat sink) |
| Firmware target | AM32 GEPRC 4IN1 F421 |

**※ The stated continuous current of 60 A applies to the whole ESC with sufficient airflow cooling. Without airflow the ESC will overheat even at a lower load.**

## 2.4 Flight controller pad layout




*Layout of the flight controller solder pads*

| Pad | Meaning |
|---|---|
| BOOT, DM, DP, 5 V, GND | pads on the top edge: USB signals and the BOOT button for emergency firmware flashing |
| BAT, GND, CUR, R5, M1–M4 | connection to the ESC using the supplied SH1.0-8P cable |
| M5, M6, M7, M8 | four further motor outputs (X8 configuration) |
| T1, R1, T2, R2, T3, R3, T4, R4 | serial ports UART1 to UART4 |
| T7, R7, 5 V, GND | universal UART7 port on the SH1.0 connector |
| SDA, SCL | I²C bus – compass and external barometer |
| BAT | battery voltage (unfiltered) |
| 4V5 | 4.5 V supply for the receiver, live even when powered from USB |
| 5 V | 5 V BEC output |
| + | supply output for the video transmitter, 12 V from the BEC as delivered |
| VTX | data pad for controlling an analogue video transmitter |
| CAM | video input from the FPV camera |

| Pad | Meaning |
|---|---|
| LED | data pad for addressable LED strips (four pads in the corners) |
| BZ- | negative terminal of the buzzer |

## 2.5 BEC power outputs

The flight controller contains two independent regulators. The **5 V / 3 A** branch powers the control electronics, the receiver, the camera and the LEDs. The **12 V / 3 A** branch is routed as delivered to the video transmitter supply pad marked **+**.

- The 12 V output can be assigned to a radio channel in the settings and switched from the transmitter.
- If you need to power the video transmitter directly from the battery voltage, bridge the middle pad with the **BAT** pad in the pad group marked **12V ◂▸ BAT** on the edge of the board.
- The **4V5** pad is live even when the board is connected to USB only. It is used for the receiver so that it can be bound without the battery connected.

**❉ The total current draw of all devices connected to one branch must not exceed its current rating. Overloading the regulator causes the flight controller to reset in flight.**

## 2.6 Bluetooth and radio parameters

The flight controller contains a built-in Bluetooth module which is internally connected to **UART8** and is used for wireless configuration of the flight controller from a mobile application. Bluetooth operates in the **2400–2483.5 MHz** frequency band.

# 3. Legal Conditions of Operation in the Czech Republic and the EU

## 3.1 The law of the country in which you fly applies

Regulations (EU) 2019/947 and 2019/945 apply in all Member States of the European Union, but national implementing rules differ from country to country – registration portals, the minimum age of the pilot, geographical zones, compulsory insurance, permitted frequency bands and maximum transmit powers. The information in this chapter describes the situation in the Czech Republic. If you operate the drone in another country, you must comply with the rules of the state in which you fly.

## 3.2 The set is a component, not a complete unmanned aircraft system

This set is a component. It becomes an unmanned aircraft system (UAS) only as the drone you build from it together with a frame, motors, propellers, a receiver and a battery. The product requirements of Regulation (EU) 2019/945 – the C0 to C4 class identification label, conformity assessment and the information notice – apply under its Article 2 only to complete unmanned aircraft systems bearing a class identification label. They do not apply to a separately sold flight controller and ESC.

- The conformity and safety of the finished drone are the responsibility of the person who built it and who operates it.
- A drone built from components sourced from several suppliers is generally a **privately built unmanned aircraft system** within the meaning of Article 3(22) of Regulation (EU) 2019/945. This interpretation is not undisputed; in case of doubt, contact the Civil Aviation Authority.

## 3.3 Operating category and drone classification

A privately built drone has no class identification label, and therefore the following restrictions apply to it in the open category:

- **Subcategory A1** – only if the maximum take-off mass of the drone is **less than 250 g** and its maximum operating speed is less than 19 m/s.
- **Subcategory A3** – in all other cases, with a maximum take-off mass of up to 25 kg. You must fly at least **150 m away from residential, commercial, industrial and recreational areas**.
- **Subcategory A2 is not available for a privately built drone.**
- An alternative is operation within a model aircraft club or association under Article 16 of Regulation (EU) 2019/947.

**※ Weigh the maximum take-off mass of the drone properly – including the battery, camera, propellers and all accessories. The 250 g limit is**

**exceeded more easily than it seems.**

## 3.4 Operator registration and pilot competence

- Registration is compulsory at a maximum take-off mass of 250 g and above, and always when the drone is equipped with a **sensor able to capture personal data** – that is, a camera – regardless of its mass.
- In the Czech Republic, registration is carried out with the Civil Aviation Authority at dron.caa.gov.cz. Mark the operator registration number assigned to you on every drone you operate.
- For subcategory A3 you must complete the online training and the remote pilot examination.

## 3.5 Operating limits of the open category

- Maximum flight height **120 m** above the closest point of the surface of the earth.
- Continuous visual line of sight (VLOS) with the drone throughout the flight.
- No flying over assemblies of people.
- Compliance with geographical zones; in the Czech Republic these are published by the Civil Aviation Authority.
- The drone must not carry dangerous goods or drop anything.

## 3.6 Flying with FPV goggles

If you fly using the image in FPV goggles, you have no direct view of the drone. Such a flight is permitted in the open category only if you are accompanied by an **unmanned aircraft observer** who keeps the drone in continuous unaided visual contact and is in direct communication with you.

## 3.7 Radio frequencies and transmit power

The flight controller is radio equipment – it contains a Bluetooth module. Its operation, and the operation of the other transmitters on the drone, is subject to the general authorisations of the Czech Telecommunication Office:

| Band | Maximum power | Authorisation |
|---|---|---|
| 2400–2483.5 MHz | 100 mW e.i.r.p. | VO-R/12 (wideband data transmission, e.g. Bluetooth and Wi-Fi) |
| 2400–2483.5 MHz | 25 mW e.i.r.p. | VO-R/10 (non-specific short range devices, e.g. the RC control link) |
| 5725–5875 MHz | 25 mW e.i.r.p. | VO-R/10 (e.g. an analogue video transmitter) |

- The equipment may only be operated with an integral antenna or with an antenna specified by the manufacturer; additional amplifiers are not permitted.

- Setting the transmit power of the connected transmitters is the responsibility of the user.
- Outside the Czech Republic, the limits of the country concerned apply.

## 3.8 Insurance and protection of personal data

- In the Czech Republic, liability insurance is compulsory in subcategory A2 and in subcategory A3 for drones over 4 kg. It is not compulsory for a smaller drone, but we strongly recommend it.
- If your camera records footage in which people can be identified, you are processing personal data. Do not stop at the aviation rules – comply with the data protection rules as well.

# 4. Assembly

## 4.1 What else you need

- a frame with a 20×20 mm mounting pattern,
- four brushless motors matching the battery voltage and the current rating of the ESC,
- a Li-Po or LiHV battery in a 3–8S configuration with an XT60 connector,
- a receiver for your radio system, an FPV camera and a video transmitter,
- a temperature-controlled soldering iron, solder, flux and desoldering braid,
- good quality cables (at least 12 AWG for the power leads) and heat-shrink tubing,
- a computer with the configurator of the flight firmware.

## 4.2 Assembling the stack

① First fit and solder **both boards separately** while they are freely accessible. Once they are screwed together you can no longer reach the lower board.

② Fit the ESC into the frame as the lower board. The signal cable connector must face forwards so that the cable does not obstruct the routing of the motor wires.

③ Insert the M3 silicone dampers into the mounting holes and push the M3×22 screws through.

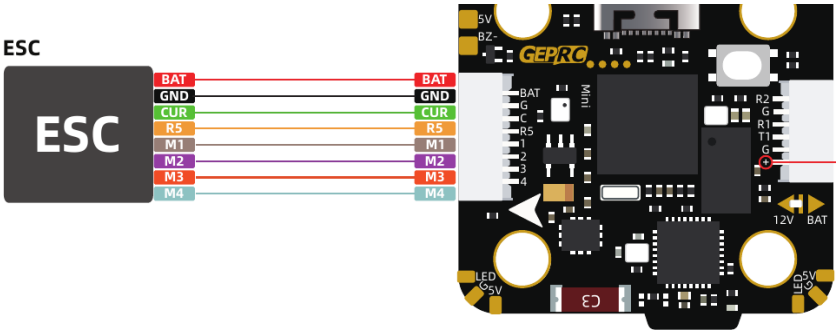
④ Fit the flight controller so that the **arrow on the board points forwards**. Any other orientation requires a corresponding setting in the firmware configuration.

⑤ Secure the assembly with the M3 nylon lock nuts. Tighten the nuts only enough for the dampers to remain flexible – overtightening removes the vibration damping and degrades the behaviour of the gyroscope.

**※ No conductive residue may remain between the boards or between a board and the frame – no wire offcut, no blob of solder and no carbon dust.**

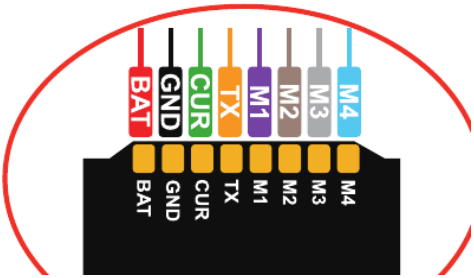
## 4.3 Connecting the ESC to the flight controller

The boards are connected using the supplied eight-way SH1.0-8P cable. The signal order on both sides is as follows:




*Connecting the ESC to the flight controller*

| Pad | Meaning |
|---|---|
| BAT | battery voltage from the ESC to the flight controller |
| GND | common ground |
| CUR | signal from the current sensor of the ESC |
| R5 | ESC telemetry; this pad is marked TX on the ESC |
| M1–M4 | signals for motors 1 to 4 |




*Pin layout of the ESC signal connector*

## 4.4 Power supply and capacitor

① Solder the XT60 power cable to the pads of the ESC marked for the positive and negative terminals. Observe the correct polarity – **reversed polarity will destroy the board** and is not a reason for a claim.

② Solder the supplied **1000 µF / 50 V** capacitor to the same pads. The longer lead is positive, the negative one is marked by a stripe on the case.

③ Place the capacitor as close to the solder pads as possible and shorten its leads to the smallest reasonable length. Long leads reduce the effectiveness of the capacitor considerably.

④ Secure the capacitor mechanically against vibration – a loose capacitor will tear its leads off in flight.

**※ The capacitor is not an optional accessory. Without it, voltage spikes may damage the ESC and the flight controller and the image quality is significantly degraded.**

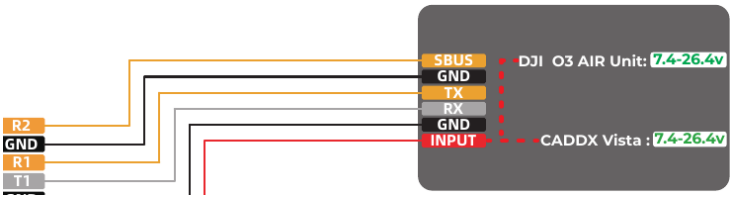
## 4.5 Soldering and wire routing

- Tin the pads first, then apply the tinned wire. The joint should be shiny and domed.
- **Route the wires so that they avoid the gyroscope** – a wire running over or close to the gyroscope degrades its function.
- After soldering, check all joints carefully, remove any solder and flux residue and make sure there is no short circuit anywhere.
- Secure the wires so that they cannot reach the propellers or chafe against the frame.

# 5. Connecting Peripherals

## 5.1 Digital video transmitter

The digital video transmitter is connected using the supplied SH1.0-6P cable. The wiring corresponds to the DJI O3 Air Unit and Caddx Vista transmitters, for which the manufacturers state a supply voltage range of 7.4–26.4 V.




*Connecting a digital video transmitter*

| Video transmitter | Flight controller | Function |
|---|---|---|
| SBUS | R2 | receiver signal from the video transmitter |
| TX | R1 | data from the video transmitter |
| RX | T1 | data to the video transmitter |
| GND | GND | common ground |
| INPUT | power | 7.4–26.4 V as stated by the manufacturer of the video transmitter |

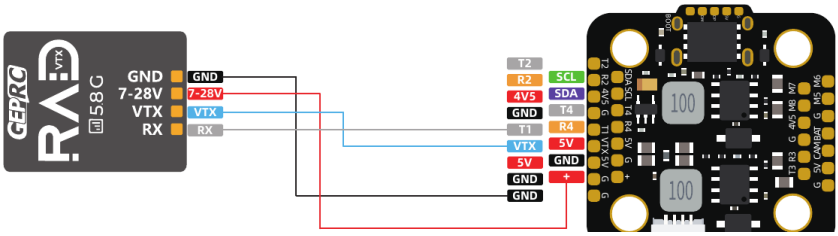
In the configurator, set *Configuration/MSP* on **UART1** and *Serial RX* on **UART2**. On the *Receiver* tab, choose *Serial (Via UART)* and the *SBUS* protocol.

High definition OSD transmission is enabled with the following CLI commands:

```
set osd_displayport_device = MSP
set vcd_video_system = HD
save
```

## 5.2 Analogue video transmitter

An analogue video transmitter is connected to the **+** (power), **GND**, **VTX** (video) and **T1** (control data) pads.



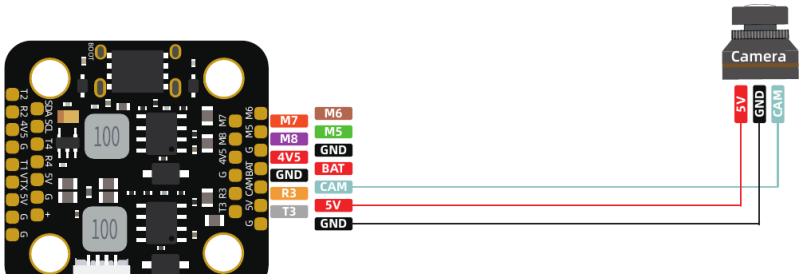

*Connecting an analogue video transmitter*

Serial control of the channels and power is enabled by setting *VTX (IRC Tramp)* in the *Peripherals* field of **UART1**.

**❖ When powering from a battery of up to 8S, the manufacturer recommends bridging the front solder pads so that the video transmitter is powered from the 12 V output.**

## 5.3 FPV camera

The camera is connected with three wires: **5 V** power, **GND** ground and the video signal to the **CAM** pad.

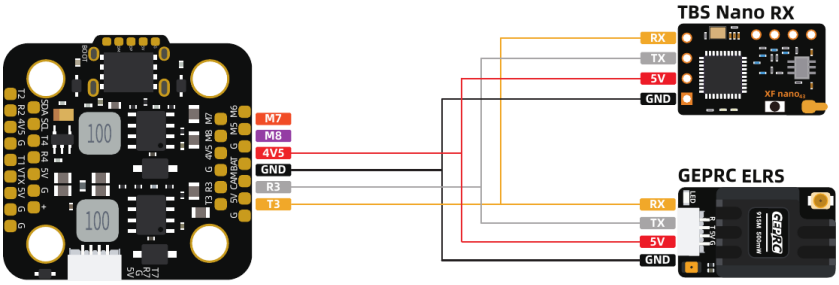



*Connecting an FPV camera*

In the configurator, the *AIRMODE* and *OSD* features are usually enabled by default; the *DYNAMIC_FILTER* feature is disabled.

## 5.4 Receiver

The receiver of the radio system is connected to **UART3** – the **T3** and **R3** pads – and is powered from the **4V5** pad, which is live even when powered from USB. The wiring corresponds to common receivers, for example the TBS Nano RX or GEPRC ELRS.




*Connecting the receiver*

- The **RX** pin of the receiver connects to the **T3** pad, the **TX** pin of the receiver to the **R3** pad.
- In the configurator, set *Serial RX* on **UART3**.
- On the *Receiver* tab, choose the *Serial (Via UART)* mode and the protocol matching your receiver, for example *CRSF* for ExpressLRS and TBS Crossfire.

**※ If you use a digital video transmitter that passes the receiver signal over the SBUS bus (chapter 5.1), do not connect a separate receiver to UART3.**

## 5.5 GPS, compass and external barometer

The GPS module is connected to **UART4** using the supplied SH1.0-4P cable. The compass and an external barometer are connected to the I²C bus – the **SDA** and **SCL** pads.


*Connecting a GPS module with a compass*

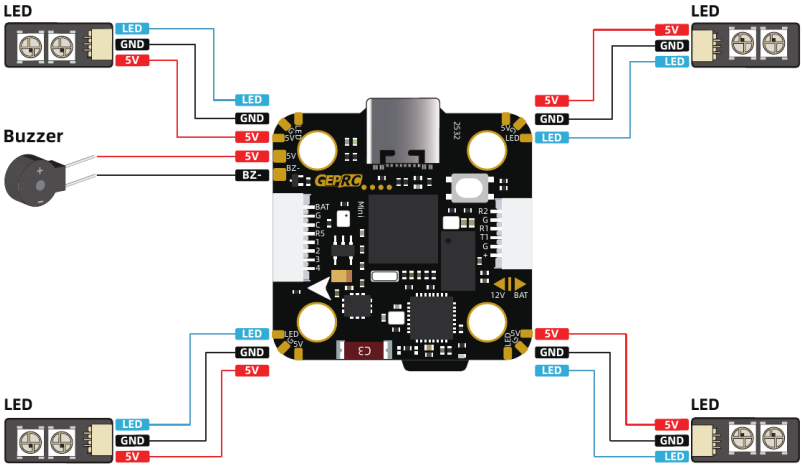
| Module | Flight controller |
|---|---|
| TX | R4 |
| RX | T4 |
| SDA | SDA |
| SCL | SCL |
| 5 V | 5 V |
| GND | GND |

- On **UART4**, set *GPS* in the *Sensor Input* field and the baud rate to *115200*.
- On the *Configuration* tab, enable GPS support, choose the *UBLOX* protocol and leave *Auto Baud* and *Auto Config* enabled.

- As delivered, the flight controller uses its **onboard barometer**. If you switch to an external barometer, enter the CLI command *set baro_i2c_device = 2* and save the settings.

## 5.6 LED strips and buzzer

The flight controller has a group of **LED**, **GND** and **5 V** pads in each of the four corners for addressable LED strips. The buzzer is connected to the **5 V** and **BZ-** pads.

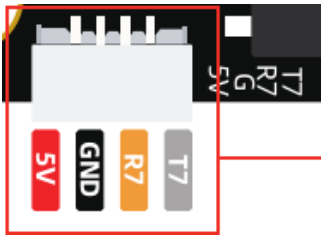



*Connecting LED strips and a buzzer*

- All four LED pad groups are connected together and form a single data chain.
- Connect the buzzer with the correct polarity; the positive terminal is on the 5 V pad.
- The current draw of the LED strips adds to the load on the 5 V branch.

## 5.7 Universal UART port

The SH1.0 connector on the bottom edge of the board provides the **UART7** port and power. It is intended for serial devices – a GPS module, a receiver, telemetry and similar.




*Universal UART7 port*

**※ Check the order of the wires in the connector before plugging it in. A reversed order may destroy the connected device.**

# 6. Commissioning

## 6.1 Connecting to a computer

Connect the flight controller to the computer with a USB-C cable. Always carry out the setup **without the propellers fitted**.

- The firmware target of the flight controller is **GEPRC_TAKER_H743MINI**, the firmware target of the ESC is **AM32 GEPRC 4IN1 F421**.
- If the computer does not recognise the board, install the USB driver according to the instructions of the configurator.
- The emergency firmware flashing mode is entered by bridging the **BOOT** pad to ground while connecting USB.

## 6.2 Serial port settings

On the *Ports* tab, assign the functions according to the devices actually connected:

| Port | Function | Chapter |
|---|---|---|
| UART1 | video transmitter – *Configuration/MSP* or *Peripherals: VTX* | 5.1, 5.2 |
| UART2 | *Serial RX* – SBUS signal from the digital video transmitter | 5.1 |
| UART3 | *Serial RX* – separate receiver | 5.4 |
| UART4 | *Sensor Input: GPS* | 5.5 |
| UART5 | ESC telemetry | 4.3 |
| UART7 | universal port on the SH1.0 connector | 5.7 |
| UART8 | *Configuration/MSP* – built-in Bluetooth | 6.3 |

## 6.3 Wireless connection over Bluetooth

The built-in Bluetooth module allows the flight controller to be configured from a mobile application without a cable. *Configuration/MSP* must be set on **UART8**.

① Connect the battery or USB.

② On the mobile device, search for the Bluetooth device carrying the manufacturer's name and pair with it.

③ In the application, choose the Bluetooth connection and load the flight controller settings.

**※ Use the wireless connection only for configuration on the ground. Do not use it in flight or with the propellers fitted.**

## 6.4 Accelerometer calibration

① Place the drone on a flat, level surface.

② In the configurator, open the *Setup* tab and run *Calibrate Accelerometer*.

③ Do not move the drone during the calibration.

④ Save the settings and check that the model in the graphical preview matches the actual attitude of the drone.

## 6.5 Checking the motors and the direction of rotation

① **Remove the propellers.**

② On the *Motors* tab, confirm the safety warning and spin up the individual motors one by one at the lowest speed.

③ Verify that the motor matching the output number spins and that the direction of rotation matches the chosen propeller configuration.

④ Change an incorrect direction of rotation in the ESC configuration, not by swapping the motor wires.

⑤ Only after this check may you fit the propellers and tighten them as prescribed.

## 6.6 Arm, Disarm and failsafe

Assign **Arm** (motors on) and **Disarm** (motors off) to a switch on the radio transmitter, never to a combination of throttle positions.

- Arming must only be possible with the throttle at minimum. Always disarm immediately after landing.
- On the *Failsafe* tab, set the behaviour on loss of signal. For flights away from buildings and people, immediate motor shutdown (*Drop*) is usually chosen.
- **Test the failsafe on the ground without the propellers**: after the radio transmitter is switched off, the flight controller must react in the way you have set.
- Set up both audible and visual low battery signalling.

## 6.7 Firmware updates

- The flight controller and the ESC each have their own firmware and are updated separately.
- Back up all your settings before the update (a *diff all* dump in the CLI).
- After updating the flight controller firmware, **repeat the accelerometer calibration** and check the channel assignment, the failsafe and the direction of rotation of the motors again.
- Never carry out an update with the propellers fitted, or with the battery connected unless the procedure explicitly requires it.

# 7. Operation, Maintenance and Troubleshooting

## 7.1 Pre-flight check

- The propellers are undamaged and tight, the motors turn freely.
- All cables and connectors are secured, nothing can reach the propellers.
- The battery is **fully charged**, undamaged and mechanically secured in the model.
- The radio transmitter is switched on and charged, the throttle is at minimum, the Arm switch is in the Disarm position.
- The flight controller reports readiness and the receiver signal is in order.
- The area is clear, there are no people or animals nearby and you know the applicable geographical zones.

## 7.2 Monitoring the voltage and ending the flight

- End the flight at **3.5 V per cell** under load at the latest – with a 6S pack that means 21.0 V.
- Monitor the voltage in the OSD or by the audible signalling.
- After landing, disarm and only then disconnect the battery.

## 7.3 After every flight

- Disconnect the battery and let the boards cool down.
- Check whether they became unusually hot and whether any wires are chafed.
- Remove any dirt; do not use water or aggressive solvents for cleaning.
- Check that the screws are tight and inspect the condition of the dampers.

## 7.4 Storage

- Store the boards in a dry place, in an antistatic bag, within the usual range of room temperatures.
- Store batteries separately, at **3.8 V per cell**, in a fireproof container.
- Disconnect the battery from the model before a longer period of inactivity.

## 7.5 Troubleshooting

| Symptom | Possible cause and solution |
|---|---|
| The board does not connect to the computer | a faulty or charge-only USB cable; a missing driver; try the emergency mode by bridging the BOOT pad to ground |
| Nothing lights up after the battery is connected | reversed polarity or a short circuit – **disconnect the battery immediately**; check the power connections and the capacitor |

| Symptom | Possible cause and solution |
|---|---|
| The flight controller resets in flight | an overloaded BEC branch or voltage spikes; check the capacitor and the current draw of the connected devices |
| A motor does not spin or spins jerkily | a cold solder joint on a motor wire; a damaged motor; check the DShot protocol in the settings |
| A motor spins the wrong way | change the direction of rotation in the ESC configuration, not by swapping the wires |
| The receiver does not communicate | the T3 and R3 wires are swapped; the wrong protocol is selected; UART3 is not set to *Serial RX* |
| The GPS does not get a fix | the module has no view of the sky; UART4 is set up incorrectly; T4 and R4 are swapped |
| The camera image has interference lines | a missing or badly placed capacitor; motor wires routed in parallel with signal wires |
| The model oscillates in flight | overtightened dampers; a damaged propeller; an unbalanced motor; check the mounting of the flight controller |
| The ESC overheats | insufficient airflow; too large a propeller or a motor with a high current draw |

# 8. Information for the EU and Czech Market

## 8.1 Importer and responsible person in the EU

The product is placed on the European Union market by the importer stated below, who is at the same time the responsible person within the meaning of Article 16 of Regulation (EU) 2023/988 of the European Parliament and of the Council on general product safety (GPSR).

| | |
|---|---|
| Importer / responsible person in the EU | Rotorama, s.r.o. |
| Company ID (IČO) | 051 57 692 |
| VAT ID (DIČ) | CZ05157692 |
| Registered office | Okrajová 1351, 674 01 Třebíč, Czech Republic |
| E-mail | info@rotorama.cz |
| Phone | +420 252 252 098 |
| Website | www.rotorama.cz |

## 8.2 Product conformity

CE

- The product bears the **CE** marking and complies with the requirements of the applicable European Union harmonisation legislation.
- A copy of the **EU Declaration of Conformity** is available from the importer at the address stated above or at the e-mail address info@rotorama.cz.
- **Product identification:** the type designation is printed directly on the boards – **TAKER H743 Mini** on the flight controller and **TAKER H60 Mini** on the ESC.

## 8.3 Disposal of electrical equipment

- The crossed-out wheeled bin symbol on the product, its packaging or in the documentation means that at the end of its service life the product **must not be disposed of together with mixed municipal waste**.
- Hand it over at a take-back point for electrical equipment – at a collection yard, at a take-back point of a collective system, or at the retailer when purchasing a new equivalent product. Take-back is free of charge for the end user.
- The obligations under Act No. 542/2020 Coll., on end-of-life products, are fulfilled by the importer through a collective take-back system.
- Proper disposal helps prevent negative impacts on the environment and human health and contributes to the reuse of secondary raw materials.

Through its contractual partner **ASEKOL a.s.**, the company ensures the take-back of waste electrical equipment from households and the separate collection of waste electrical equipment, batteries and accumulators in accordance with the applicable legislation. The customer is entitled to hand over old electrical equipment or a battery or accumulator at any collection point of the above contractual partner. The addresses of these take-back points are listed at www.asekol.cz, www.ecobat.cz and also https://visoh2.mzp.cz/RegistrMistZO/RegistrMistZOPublic/MapaMistZpetOdberu.

# 9. Warranty and rights arising from defective performance

The rights and obligations of the contracting parties are governed by Czech law, in particular by Act No. 89/2012 Coll., the Civil Code, and Act No. 634/1992 Coll., on Consumer Protection.

- The seller is liable to the buyer for the product being free of defects on receipt. If the buyer is a consumer, a defect may be notified **within two years of receipt** of the product (Section 2165 of the Civil Code).
- If a defect appears within **one year** of receipt, the product is deemed to have been defective already at the time of receipt (Section 2161(5) of the Civil Code).
- When purchasing online, a consumer has the right to **withdraw from the contract within 14 days** of receiving the goods without giving a reason (Section 1829 of the Civil Code).
- Claims should be made with the retailer from whom you purchased the product. The importer's contact details are given in Chapter 8.1.
- The competent body for out-of-court settlement of consumer disputes is the **Czech Trade Inspection Authority**, Štěpánská 796/44, 110 00 Prague 1, www.coi.cz.